

S.N. 10/065,816

120365

REMARKS

The Office action dated April 22, 2004, and the cited references have been carefully considered.

Status of the Claims

Claims 1-29 are pending. Claim 2 is canceled. Therefore, claims 1 and 3-29 remain in the current prosecution.

Claims 1 and 4 are rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the enablement requirement. Claims 1 and 4 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite.

Claim 1 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Boudreaux et al. (U.S. Patent 4,104,605; hereinafter "Boudreaux"). Claims 1 and 3 are rejected under 35 U.S.C. § 103(a) as being unpatentable over the article by Budhani et al., entitled "Thin Film Temperature Sensors for Gas Turbine Engine: Problems and Prospects" (hereinafter "Budhani"). Claim 2 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Boudreaux in view of JP 410034825A (hereinafter "JP '825"). Claims 5, 8-11, 13-18, 23, and 25-27 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Budhani in view of JP '825. Claims 6, 7, and 24 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Budhani in view of JP '825, and further in view of EP0908713A1 (hereinafter "EP '713"). Claim 19 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Budhani in view of JP '825, and further in view of prior art disclosed on page 8 of specification. Claims 20-22 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Budhani in view of JP '825, and further in view of Smialek et al. (U.S. Patent 5,275,670; hereinafter "Smialek"). Claims 28 and 29 rejected under 35 U.S.C. § 103(a) as being unpatentable over Budhani in view of JP '825, and further in view of Chapman et al. (U.S. Patent 6,568,848; hereinafter "Chapman").

The Applicants respectfully traverse all of these rejections for the reasons set forth below.

Objection to the Specification

S.N. 10/065,816

120365

The Examiner indicated, in the conversation on June 8, 2004 between the Applicants' attorney and the Examiner, that the specification is objected to because there is a large blank space on page 6 between [0024] and the text beginning with "In one embodiment of the present invention . . ." Please delete the blank space. The objection now is overcome.

The specification is objected to because "EXAMPLE" in paragraph 0034 has not been described. Paragraph 0034 of the specification has been amended to indicate that the EXAMPLE describes the manufacture of a Pt/Pt-Rh film thermocouple that is described in the immediately following paragraph. No new matter has been added. Therefore, this objection is now overcome.

The specification is objected to because the "means for measuring a change" recited in claims 1 and 4 should have a description. Claims 1 and 4 have been amended to delete the recitation of a "means for measuring a change." This deletion obviates the need for a description of such a means.

Objection to the Drawings

The drawings are objected to because the "means for measuring a change," as is recited in claims 1 and 4, must be shown. Claims 1 and 4 have been amended to delete the recitation of a "means for measuring a change." This deletion obviates the need for amendments to the drawings.

Claim Objection

Claim 4 would be allowable if rewritten to overcome the rejection under 35 U.S.C. § 112, second paragraph. Claim 4 has been amended to delete the recitation of a "means for measuring a change." Therefore, claim 4 is now in condition for allowance. Early allowance is respectfully requested.

Claim 12 is objected as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Claim 12 has been rewritten in independent form including all of the limitations of the base claim and any intervening claims, and is now in condition for allowance. Early allowance is respectfully requested.

S.N. 10/065,816

120365

Claim Rejection Under 35 U.S.C. § 112, First Paragraph

Claims 1 and 4 are rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the enablement requirement. Specifically, the "means for measuring a change," as is recited in these claims, has not been described. These claims have been amended to delete the recitation of such means and to clarify the type of measurements to be made. Therefore, this rejection is now overcome.

Claim Rejection Under 35 U.S.C. § 112, Second Paragraph

Claims 1 and 4 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. Specifically, the Examiner stated that "the claim language is confusing due to the [same] reason [as] stated" in the rejection under Section 112, first paragraph. Claims 1 and 4 have been amended to clarify the type of measurements to be made. Therefore, this rejection is now overcome.

Claim Rejection Under 35 U.S.C. § 103(a)

Claim 1 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Boudreaux. The Applicants respectfully traverse this rejection because Boudreaux does not teach or suggest all of the limitations of claim 1.

"[T]he legal conclusion of obviousness [under 35 U.S.C. § 103(a)] requires that there be some suggestion, motivation, or teaching in the prior art whereby the person of ordinary skill would have selected the components that the inventor selected and used them to make the new device." *C.R. Bard, Inc. v. M3 Systems, Inc.*, 48 U.S.P.Q.2d 1225, 1231 (Fed. Cir. 1998). Thus, in order for the prior art to render the claimed invention obvious, all of the elements thereof must be taught or suggested in the prior art. "What must be found obvious to defeat the patentability of the claimed invention is the claimed combination." *The Gillette Co. v. S.C. Johnson & Son, Inc.*, 16 U.S.P.Q.2d 1923, 1927 (Fed. Cir. 1990) (emphasis added).

Boudreaux does not teach or suggest that a thermal strain between the electrically non-conducting film and the substrate is maintained at less than 0.006, as is recited in claim 1. Therefore, Boudreaux does not teach or suggest all of the limitations of claim 1. Consequently, claim 1 is patentable over Boudreaux.

S.N. 10/065,816

120365

In the Office action, the Examiner stated that JP '825 "teaches to choos material of layers bonded to ach other such that they have zero thermal stress (less than 0.006)." Office action, page 6. The Applicants respectfully traverse this statement because the English abstract of JP '825, supplied by the Examiner with the Office action, does not teach or suggest the recited limit for thermal strain, as this term is defined in the instant application. The English abstract of JP '825 teaches a truss structure that has zero strain because the two layers bonded to either side of the truss have opposite expansion coefficients: one positive and one negative. Thus, the concept of zero thermal strain taught by JP '825 is not the same as the concept of thermal strain defined in the instant patent application and recited in the instant claims. In addition, the Applicants respectfully submit that the Applicants have not been given fair notice to the rejection by being supplied merely with the translation only of the abstract of JP '825, which does not provide the complete teaching of the reference, the major part of which that is in Japanese could have further enlightened the difference between the instant claims and the reference. The whole reference must be considered by the Examiner under 35 U.S.C. § 103(a). *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 220 U.S.P.Q. 303, 311 (Fed. Cir. 1983). Moreover, in any dealing between a citizen and a government agency, the citizen is entitled to fair notice. U.S. Constitution, Amendment V. Since the Applicants are not given the entire JP '825 reference in English, the Applicants have not received fair notice of the rejection.

Claims 1 and 3 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Budhani. The Applicants respectfully traverse this rejection because Budhani does not teach or suggest all of the limitations of each of claims 1 and 3.

Budhani discloses only a film thermocouple. Budhani does not teach or suggest that the thermal strain is less than 0.006, as is recited in claims 1 and 3. Since Budhani does not teach or suggest all of the limitations of each of claims 1 and 3, these claims are patentable over Budhani.

The Applicants respectfully traverse the Examiner statement that "[i]t is inherent that thermal coefficients of expansion of all the films are selected so as to ensure that the films remains adhered to each other during heating/measurements." Such selection is not inherent because the prior-art references cited by the Examiner document so many failures in the past. Budhani did not recognize the limit for thermal strain that is recited in claims 1 and 3 and all claims dependent therefrom, in order to manufacture a successful thin-film sensor.

S.N. 10/065,816

120365

Claim 2 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Boudreaux in vi w of JP '825. Claim 2 is canceled. Therefor , this rejection is now moot.

Claims 5, 8-11, 13-18, 23, and 25-27 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Budhani in view of JP '825.

Budhani discloses only a film thermocouple. Budhani does not teach or suggest that the thermal strain is less than 0.006, as is recited in claims 5, 8-11, 13-18, 23, and 25-27.

As pointed out above, JP '825 teaches a truss structure that has zero strain because the two layers bonded to either side of the truss have opposite expansion coefficients: one positive and one negative. Thus, the concept of zero thermal strain taught by JP '825 is not the same as the concept of thermal strain defined in the instant patent application and recited in the instant claims. More specifically, JP '825 does not teach that thermal strain between the electrically non-conducting film and the substrate is maintained at less than about 0.006.

Since a combination of Budhani and JP '825 does not teach or suggest all of the limitations of each of claims 5, 8-11, 13-18, 23, and 25-27, these claims are patentable over Budhani in view of JP '825.

Claims 6, 7, and 24 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Budhani in view of JP '825, and further in view of EP '713.

Budhani discloses only a film thermocouple. Budhani does not teach or suggest that the thermal strain is less than 0.006, as is recited in claims 6, 7, and 24.

As pointed out above, JP '825 teaches a truss structure that has zero strain because the two layers bonded to either side of the truss have opposite expansion coefficients: one positive and one negative. Thus, the concept of zero thermal strain taught by JP '825 is not the same as the concept of thermal strain defined in the instant patent application and recited in the instant claims. More specifically, JP '825 does not teach that thermal strain between the electrically non-conducting film and the substrate is maintained at less than about 0.006.

S.N. 10/065,816

120365

Since neither Budhani nor JP '825 teaches or suggests that the thermal strain, as defined in the instant application, is maintained less than 0.006, adding EP '713 to show an electrically non-conducting protective layer or an electrically non-conducting layer separating the two spaced-apart films of electrically conducting materials still does not teach or suggest all of the limitations of each of claims 6, 7, and 24.

Since a combination of Budhani, JP '825, and EP '713 does not teach or suggest all of the limitations of each of claims 6, 7, and 24, these claims are patentable over Budhani in view of JP '825 and EP '913.

Claim 19 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Budhani in view of JP '825, and further in view of alleged prior art disclosed on page 8 of the specification. The Applicants respectfully traverse this rejection because a combination of Budhani and the cited disclosure does not teach or suggest all of the limitations of claim 19.

Budhani does not teach or suggest a thermal strain between the dielectric film and the substrate to be less than about 0.006, as is recited in claim 19. And as pointed out above, JP '825 does not teach the concept of thermal strain that is defined in the instant application. Therefore, adding disclosure of OhmCraft or Sciperio technique of direct writing still does not teach or suggest all of the limitations of claim 19.

Since a combination of Budhani, JP '825, and the disclosure of OhmCraft and Sciperio regarding the direct writing technique does not teach or suggest all of the limitations of claim 19, this claim is patentable over the combinations of these references.

Claims 20-22 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Budhani in view of JP '825 and alleged prior art disclosed on page 8 of the specification and further in view of Smialek. The Applicants respectfully traverse this rejection because a combination of Budhani, JP '825, the cited disclosure, and Smialek does not teach or suggest all of the limitations of each of claims 20-22.

Budhani does not teach or suggest a thermal strain between the dielectric film and the substrate to be less than about 0.006, as is recited in claims 20-22. And as pointed out above, JP '825 does not teach the concept of thermal strain that is defined in the instant application. Therefor , adding the cited disclosure to show the direct writing apparatuses,

S.N. 10/065,816

120365

and Smialek to show the annealing of deposited materials still does not teach or suggest all of the limitations of each of claims 20-22.

Since a combination of Budhani, JP '825, the cited disclosure, and Smialek does not teach or suggest all of the limitations of each of claims 20-22, these claims are patentable over Budhani in view of the cited disclosure, and Smialek.

Claims 28 and 29 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Budhani and JP '825 in view of Chapman. The Applicants respectfully traverse this rejection because a combination of Budhani, JP '825, and Chapman does not teach or suggest all of the limitations of each of claims 28 and 29.

Budhani does not teach or suggest a thermal strain between the dielectric film and the substrate to be less than about 0.006, as is recited in claims 28 and 29. And as pointed out above, JP '825 does not teach the concept of thermal strain that is defined in the instant application. Therefore, adding Chapman to show radio frequency transmission of temperature readings still does not teach or suggest all of the limitations of each of claims 28 and 29.

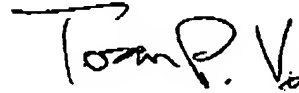
Since a combination of Budhani, JP '825, and Chapman does not teach or suggest all of the limitations of each of claims 28 and 29, these claims are patentable over Budhani in view of Chapman.

In view of the above, it is submitted that the claims are patentable and in condition for allowance. Reconsideration of the rejection is requested. Allowance of claims at an early date is solicited.

S.N. 10/065,816

120365

Respectfully submitted,



Toan P. Vo, Ph.D.
Attorney for the Applicants
Registration No. 43,225
(518)387-6648

Schenectady, New York
June 9, 2004